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MECHANICAL DILATATION OF THE UTERUS.

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# MECHANICAL DILATATION OF THE UTERUS.

BY CHARLES MEIGS WILSON, M.D.,  
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The word mechanical in this paper is used in a restricted sense, for all non-physiological or artificial dilatation of the uterus is, of course, mechanical. Perhaps the word instrumental would have been better, because I mean to call your attention briefly to the advantages of a special form of dilator used for this purpose. The attention of the profession has been called to uterine dilators of all sorts, sizes and shapes, frequently. Many of them are clever pieces of mechanism, adapted more or less to their intended use. Many are erroneous in conception and of faulty pattern. To Dr. Mackintosh, of Edinburgh, who dilated the uterus with a graduated series of bougies similar to those recently devised by Dr. Spooner, of Philadelphia, belongs the credit of originating this plan of treatment. Dr. Mackintosh published his account in 1832. The operation, like many valuable surgical procedures, was lost sight of, and was superseded by the painful method of dilatation by slowly-expanding tents, which in turn was followed by the more barbarous method of cervical hysterotomy. This latter plan was adopted and warmly advocated by such distinguished men as Simpson and the elder Sims, both of whom devised instruments for the operation. The literature of dilatation is scant. Beyond two discussions before the American Gynecological Society in 1877 and in 1878, and an able monograph read by Dr. Goodell before the Philadelphia Obstetrical Society in 1884, and the chapter on dilatation in his "Lessons in Gynecology," it amounts to almost nothing. Dr. Emmet makes no mention of the subject in his book. Dr. Thomas devotes less than two pages to it, in which he says, "it is to all appearances shockingly brutal, and seems to be a dangerous procedure." On the contrary, when skillfully done, it is a perfectly safe operation, unattended by danger. The instrument which I always use, and which I believe to be the best, is that known as the Ellwood Wilson dilator, and was first presented by him to the American Gynecological Society in 1877, after he had used it



and tested its merits for a space of five years in his private practice. The meagre description he gave of the instrument, and the mistaken ideas as to its effectiveness and shape entertained by many prominent gynæcologists, as well as his more extended experience with its use, and the results of my own limited experience, render an accurate description of the instrument necessary. The dilator, then, consists of two lateral halves, united three and one-quarter inches from the uterine or beak end of the instrument by an ordinary screw-joint. The external or proximal end is seven inches in length from joint to handle, and terminates in two handles attached at an obtuse angle to the shank. The beak or diverging end of the instrument is shaped much in the manner of a Thomson male bougie. The arc of curvature of the beak is fashioned to a circle three and one-quarter inches in diameter. The diverging blades are conical in shape, decreasing in size from the joint to the distal extremity, the decrease in their diameter running through seven sizes of the French catheter scale. Three dilators comprise the set as ordinarily used. The smallest, whose use is really that of an explorer, measures ten millimètres at the point, being a little larger than the ordinary uterine sound. The second size measures sixteen millimètres, and the third size, or largest instrument of the set, measures twenty-two millimètres at the point. These measurements are, of course, circumferential. Thus, the dilators correspond to the English urethral bougies Nos. 5, 8, 11. The instruments are fitted with a screw and button attachment, by which, when the dilatation has been accomplished by *manual* effort, the blades are held apart for a few moments. The cross-bar upon which the screw is threaded is marked in spaces which correspond to centimètres of separation of the blades at the extremity of the beak, so that the operator may accurately judge how much separation of the blades exists. The extreme divergence of the blades at the beak end, in the smallest instrument, is two and one-half centimètres. In the medium size, three centimètres, and in the largest size, three and one-half centimètres. With the smallest instrument, if the uterine canal be greatly diminished in size from its normal caliber, or the uterus be spasmodically contracted around the instrument, some feathering or bending of the blades may take place, owing to their lightness. When using the smallest instrument, therefore, an allowance of at least half a centimètre should be made between the amount of dilatation

as read off from the markings on the crossbar, and the dilatation as it really exists in the cavity of the uterus. In the two larger-sized dilators, however, the blades are too large and strong to permit of any appreciable feathering; so that the amount of dilatation as read off from the indicator really exists in the uterus. Owing to the fact that in this instrument the expansion is greatest at the distal extremity of the diverging blades and decreases toward the joint, it is impossible for the dilator to slip if the uterus resists the dilatation by contracting upon the expanding blades. Hence, in using this form of dilator, the operator may rest assured that, once having properly introduced it, it will remain *in situ* during the time that the blades are expanded. This cannot be done in those instruments in which the expansion of the blades is equal from joint to beak. And as all the latter have more or less feathering of the blades, owing to lack of temper and consequent elasticity of the metal comprising the blades, it is easy to see that, when the blades are separated in the cavity of the cervix or the body of the uterus, they form a cone whose apex points toward the fundus, and when the uterus contracts down upon the blades, it tends to force them out of its cavity or to slide up over them. The so-called exaggerated curve of the beak makes the dilator difficult of introduction in unpracticed hands. But if the instrument be properly manipulated, this curve facilitates, instead of impedes, its introduction. Besides, this curve is fashioned accurately to the axis of the uterus—the curve corresponding to its normal bend. Again, the curve is not so great as it appears, when it is remembered that, in introducing the dilator, the handles are held up toward the symphysis, instead of being depressed toward the perineum, as many have supposed. Lastly, this form of dilator possesses an advantage over all those patterns in which there is equal bilateral divergence of the blades from joint to beak. And this consists in the fact that it gives the greatest dilatation where it is needed, viz., at the internal os and in the body of the uterus, whilst it does not over-distend or tear the external os—which is usually patulous, barring rare cases—and which, owing to the circular arrangements of its fibres, will not permit of excessive expansions. My manner of using the instrument is as follows: The patient is placed upon the operating table in the ordinary dorsal position, a modified Nott speculum of the pattern devised by Dr. E. Wilson is inserted into the vagina and the cervix



exposed. The dilator, previously sterilized and warmed by passing through an alcohol flame, is anointed with carbolized petroleum jelly. It is then lightly grasped in the right hand, similar to the way in which a pen is held, and turned upon its side; it is made to slide along the forefinger of the left hand in the vagina, used as a guide, until the extremity of the beak engages at the external os. Then with a sweeping, curved motion of the hand, the instrument is turned upon its axis, until the extremities of the handles point toward the perineum—the handles at the same time being elevated toward the symphysis pubis, and slightly pushed upon to facilitate the introduction of the instrument. Sometimes, owing either to mechanical occlusion or spasm of the uterus, some difficulty is experienced in passing the instrument. When this occurs, the instrument is introduced as far as it will pass; the blades are then partially separated and withdrawn a short distance—still held apart; they are then reclosed and carried further in. This method is repeated until the blades are fully inserted. Then the blades are very carefully and *slowly* separated by moderate pressure of the operator's hand upon the handles of the instrument, and the blades are locked apart by the screw. A tenaculum is rarely needed to steady the os, though, where there is extreme mobility of the uterus, its use may be necessary. The whole operation in its various manœuvres resembles greatly that of dilatation of the male urethra. Full dilatation, or dilatation up to the *norme*, requires from five to eight sittings, and should be gradually reached. My practice is never to use any but the smallest dilator at the first sitting, and I never expand this to its greatest extent. At least three days should elapse between each dilatation. The operation is a painful one, especially at the first few dilatations. The pain, however, is usually of short duration, though severe in character, and is sometimes followed by a sense of soreness and uterine distress for a few hours. The withdrawal of the instrument is commonly followed by the appearance of a few drops of blood. But I have never seen anything like a hemorrhage after its use. Performed in the manner described above, the operation has never been followed by any untoward symptoms in my hands; although I have had but a limited experience, having performed the operation but one hundred and eighty-five times in the clinic of the Philadelphia Lying-in Hospital and in private practice. Dr. Ellwood Wilson has had similar happy results in a series of over two thousand operations. Dr. Parvin

has also been successful in their use. Dr. Goodell, who, however, prefers the Ellinger dilator, has had, I gather from the paper read before the Philadelphia Obstetrical Society last year, similar good results. Many gynæcologists are in favor of rapid dilatation, or full dilatation at one sitting. The objections are that the patient has to be put under the influence of an anæsthetic in order to bear the excruciating pain; and that the unavoidable traumatism of rapid divulsion is frequently followed by inflammation of so serious a character as to place the patient's life in jeopardy. The cutting operation of Sims, or internal cervical hysterotomy, has rightly given way to dilatation as a surgical procedure. It has been abandoned on account of the danger attending it and the unsatisfactory results obtained. To illustrate to what an extent this operation was formerly carried, I cite the following case: Miss —, æt. twenty-six, after suffering for seven years with violent dysmenorrhœa, was operated upon by J. Marion Sims five years ago. Her suffering increased after the operation. And so extensive had the cutting been, that her contracted cervical canal had been transformed into an extensive bilateral laceration. Prof. D. Hayes Agnew and Dr. E. Wilson saw the case, and advised that the operation of hysterotrachelorrhaphy be performed, to restore the cervix. Cases of stenosis of the uterine canal are met with about as frequently in unmarried as in married women. In multiparæ, however, the canal rarely becomes constricted, save as the result of traumatic or catarrhal inflammation. For the treatment of painful menstruation, the result of a constricted or partially occluded uterine canal, whether it be the result of congenital deformity, rudimentary development, catarrhal or other inflammation, flexion, with or without angulation of the uterus, or sterility, gradual dilatation with steel dilators is the proper method of treatment. In cases of rudimentary or undeveloped uteri, dilatation is really physiological exercise for the organ. And I believe that when we have dysmenorrhœa due to deficient development of the ovaries, dilatation should have a thorough trial before we resort to the dernier expedient of oöphorectomy, in the hope that we may stimulate the ovaries to further growth and greater physiological activity through the reflex stimulation and increased nutrition (through the increased blood supply) brought about by dilatation of the uterus. In cases of dysmenorrhœa, it is well to have the last dilatation two or three days before the expected time of the monthly illness. In



this class of cases we know that from seventy to eighty per cent. can be permanently cured by dilatation.

Did space permit, I would cite at length and in detail cases where women have borne children, and been relieved of great physical suffering and mental annoyance, by means of this simple operation.

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